REMARKS

Reconsideration of this application is respectfully requested in view of the foregoing amendments and the following remarks.

Enclosed herewith is a Terminal Disclaimer to overcome the obviousness-type double patenting rejection of Claims 21-80 in view of commonly-owned U.S. Patent No. 6,424,799.

Claims 31-39, 44, 50 and 67-80 stand rejected under 35 USC § 103(a) as being unpatentable in view of Bardwell et al., No. 4,066,942 and Preis, No. 4,828,049. In addition, Claims 45, 46 and 51-56 stand rejected under 35 USC § 103(a) as being unpatentable over Bardwell, Preis and Germanton et al., No. 5,014,793.

The principal reference to Bardwell is directed to a pneumatic nutsetter that is powered by an air motor. The disclosure in this patent is essentially equivalent to the Dudek patent, No. 3,920,088, listed in the Information Disclosure Statement, which was cited and extensively discussed in the grand parent application of this case that resulted in the issuance of U.S. Patent No. 6,424,799. In fact, most of the drawings in Bardwell are virtually identical to the drawings in Dudek.

Pneumatic nutsetters of the type described in Bardwell (and Dudek), are typically used in industrial applications, such as in the assembly of automobiles, to precisely set threaded fasteners (e.g., nuts and bolts) to prescribed torque settings. However, there are fundamental differences between pneumatic power tools and electrical power tools. In particular, pneumatic tools like those disclosed in Bardwell and Dudek are ON/OFF devices. In other words, there is no way to modulate the power supplied to the motor in a linear fashion to control the speed of the tool. The trigger switches in these tools are

simple ON/OFF devices. Thus, when setting a threaded fastener to a desired torque setting, if the pneumatic tool (which is capable of producing very high levels of torque) is simply run until the desired torque setting is sensed, the tool will frequently overshoot the desired mark. Moreover, abruptly turning the tool off at such high torque settings produces correspondingly high reaction torques which are applied to the wrist and arm of the operator. Consequently, it has been well known in industrial pneumatic tool art for over 30 years to pulse the air motor as the tool approaches the desired torque setting as a way of modulating the power output of the tool to prevent overshoot and to protect the operator. In short, Bardwell transition to a pulsation mode (and preferably gradually decreases the width of the on-time pulses as shown in Fig. 5) to gradually reduce the average power output of the tool as the desired torque setting is approached. With electrically powered tools, however, this control technique is not required to address such concerns because the power supplied to the motor, and hence the speed of the motor, can be controlled directly.

Moreover, the present invention is not directed to the task of setting threaded fasteners to desired torque settings. Rather, the present invention is designed to improve the control of the tool and most significantly, and especially with cordless tools, to enhance the effective torque output of the tool and thus extend the usefulness of the tool when the energy level of the battery is depleted. Pneumatic tools like those disclosed in Bardwell are not pulsed to enhance torque output. Pneumatic tools are capable of producing torque in abundance.

Thus, to suggest that it would be obvious to combine the teachings of Bardwell with a reference, such as Germanton, that discloses a controller for a variable speed

electric motor, is not supported by the art and is merely using Applicant's teachings as the motivation to combine.

With reference to the Examiner's comments regarding the application of Bardwell to the rejected claims, Applicant respectfully disagrees with the Examiner's characterization of the teachings of the Bardwell reference. For example, regarding Claim 31, Bardwell does not produce a drive signal that controls the speed of the motor. The controller in Bardwell is controlling maximum torque output. Bardwell also does not produce a drive signal having a frequency. Consequently, Bardwell does not adjust the frequency of the drive signal. In addition, with respect to Claim 32, the "DC power" (e.g. 29) in Bardwell does not comprise the power source that is connected to the motor. The DC power source 29 merely provides the power for the controller circuit. The motor in Bardwell is air powered. Concerning Claims 36-38 and the reference to Preis, the Preis patent merely discloses a power tool having a 2-speed transmission. There is no means disclosed in Preis for monitoring the speed of the motor. The transmission is merely selectable between two speeds.

With regard to Claim 44, Bardwell does not control the speed of the motor and does not modulate the power in accordance with the position of the trigger switch. Trigger switch 216 is strictly an ON/OFF two-position switch (see Fig. 16). Again, this is typical of air powered tools. Moreover, push button 342 in Bardwell is used to initiate a torque setting operation, (col. 13, lines 66-68) NOT to switch the controller into a "pulse" mode. Even with push button 342 depressed, the controller will only begin pulsating the motor when the transducer 239 senses a predetermined reaction torque.

> "The valve 295 will remain in its open position shown in FIG. 18 while the nut is run down or until the reaction torque on

> the operator which is also sensed by the transducer 239, reaches a value of about 10 ft. lbs." (col. 14, lines 52-55).

Note, the amendment to the "second operator actuable device" recitation in Claim 44 has been made to ensure that the recitation is not interpreted as a § 112 paragraph 6 limitation, and not for any purpose relating to patentability.

With regard to Claim 50, the first operator actuable device (i.e. trigger switch) in Bardwell does not have a plurality of non-OFF settings. The trigger switch 216 in Bardwell is only an ON/OFF device. Moreover, the control circuit in Bardwell does not control the amount of power supplied to the motor by modulating an electrical signal supplied to the motor in accordance with the setting of the first operator actuable device.

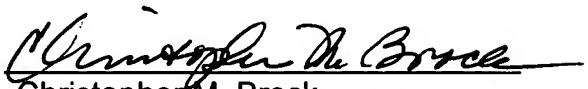
In Bardwell, depression of the trigger switch energizes the solenoid that opens the air valve to power the motor. In addition, the pushbutton 342 merely serves to initiate a torque setting operation, and not to cause the control circuit to enter a pulse mode. As previously noted, the transition to "pulsation" happens in response to the sensed signal from transducer 239.

Finally, independent Claim 67, 70 and 72 have been amended to emphasize the fundamental distinctions noted above between the environment of the present invention and the pneumatic power tools disclosed in Bardwell and Dudek.

Accordingly, pending Claims 21-38 and 40-78 and 80 are believed to be in condition for allowance. Favorable reconsideration is respectfully solicited.

Respectfully submitted,

Dated: March 3, 2006

By: 
Christopher M. Brock
Reg. No. 27313

HARNESS, DICKEY & PIERCE, P.L.C.
P.O. Box 828
Bloomfield Hills, Michigan 48303
(248) 641-1600

CMB/bg